

Navsonde Atmospheric Sampler, Phase II

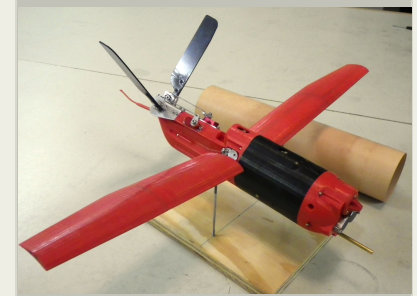
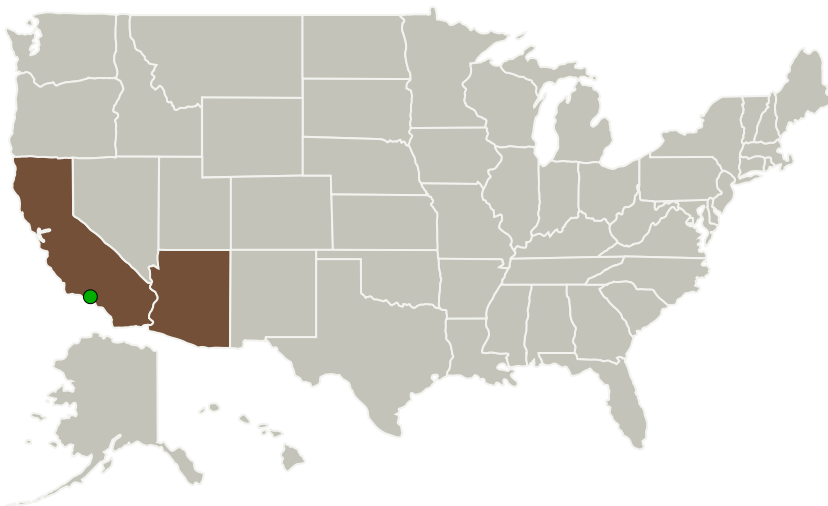
Completed Technology Project (2014 - 2016)



Project Introduction

The proposed innovation is a low-cost, retrievable and reusable, autonomously guided dropsonde capable of deploying from a host aircraft and performing in-situ atmospheric measurements. We have decided to name this platform the NavSonde—an autonomously navigable sonde-glider. The proposed effort focuses on the engineering work involved with the retrieval of high altitude volcanic ash plume samples using this autonomously guided dropsonde. Small scale particulate sampling equipment for airborne missions is not commercially available. Even for full scale manned systems, many research programs develop their own collection and sensor systems. A small form factor unmanned aerial sampling system, capable of being deployed from a host aircraft at high altitudes and autonomously guided to regions of interest will offer atmospheric scientists an innovative research tool—particularly for those seeking unprecedented access to high altitude atmospheric sampling to monitor events that may be deemed too dangerous for manned aircraft. Autonomously guided dropsondes have several advantages over current dropsondes—the main ones being their ability to fly to regions of interest and to perform pre-programmed actions at specified locations and/or altitudes (e.g. sample).

Primary U.S. Work Locations and Key Partners



Navsonde Atmospheric Sampler, Phase II Briefing Chart Image

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Organizations Performing Work	Role	Type	Location
Latitude Engineering	Lead Organization	Industry	Tucson, Arizona
● Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations	
Arizona	California

Project Transitions

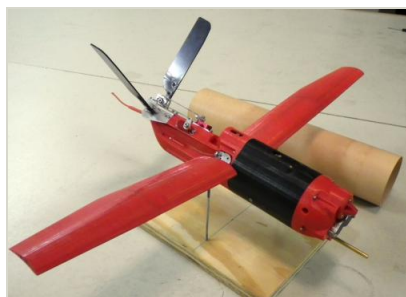
▶ **April 2014:** Project Start

✓ **April 2016:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137754>)

Images



Briefing Chart Image

Navsonde Atmospheric Sampler, Phase II Briefing Chart Image (<https://techport.nasa.gov/image/136084>)



Final Summary Chart Image

Navsonde Atmospheric Sampler, Phase II Project Image (<https://techport.nasa.gov/image/127228>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Latitude Engineering

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

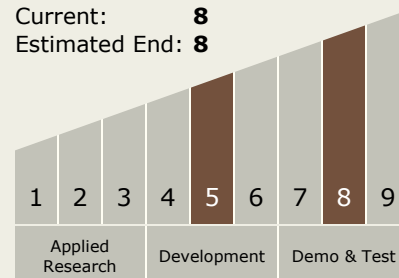
Carlos Torrez

Principal Investigator:

Bayani R Birkinbine

Technology Maturity (TRL)

Start: 5
Current: 8
Estimated End: 8



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.3 In-Situ Instruments and Sensors
 - └ TX08.3.4 Environment Sensors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System